

Sustainability 2030

Buildings and Climate Change

Remarks to the Energy Efficiency Study Committee, Iowa State Legislature

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Chair(s), Members of the study committee, good afternoon. I am Kate Schwennsen, Associate Dean of the College of Design at Iowa State University and the past president of the American Institute of Architects.

Thank you for the opportunity to appear today to share some thoughts on energy consumption, energy efficiency and how these important topics relate to the most overlooked sector in the greenhouse gas debate, buildings: the buildings in which we live, work, and play.

If we continue as we are, with business-as-usual, with fossil fuel CO2 emissions continuing to increase at their current rate, it will mean an additional warming of 20C to 30C this century, which will make the Earth a very different planet. Action must be prompt, otherwise CO2- producing infrastructure will be built within a decade that will make it impractical to keep further warming under 10C.

What do you *think* is the top cause of greenhouse gas emissions today?

Would you say it is:

- Exhaust from cars and trucks?
- Emissions from aerosol cans?
- Emissions from commercial buildings?
- Emissions from power plants?
- Natural causes?

When the public was asked what they thought was the top cause of greenhouse gas emissions today, voters responded as follows:

- 40% Cars and Trucks
- 1% Aerosol cans
- 7% Commercial buildings
- 19% Power plants
- 15% Natural causes
- 8% Other
- 10% Unsure/Refused

But the reality is:

- 25% Industry
- 32% Transportation
- 43% Buildings:
- **Residential, commercial, and industrial buildings contribute approximately 43% of carbon dioxide emissions into the atmosphere.**

The total impact of the building sector is not even fully measured by this statistic. Emissions caused by buildings are actually larger when you consider the greenhouse gas impact of buildings, including emissions expended in the construction process, transport of materials, emissions from the manufacturing of building products, and the transportation effects of sprawl.

*Both near- and long-term strategies must be examined in order to fully approach the problem, including building construction, use, and location strategies. These strategies should include already constructed buildings as well as those buildings yet to be constructed.¹

¹ Brown, Marilyn, et al. Towards a Climate Friendly Built Environment. Pew Center on Global Climate Change. June 2005

And building design, construction, materials and operation..... consume more energy than any other part of the US economy! 76% of electricity consumed in the U.S. is used to operate buildings.

Why should we care about building design? Can we make a difference?

During the next 30 years, some 50 billion square feet will be torn down, some 150 billion will be renovated, and another 150 billion will be built new. By 2035, three-quarters of the built environment will be either new or renovated. While that is a scary prospect, it also represents a unique opportunity. Architects, builders, developers and building owners can make a big change and have a huge impact in addressing one of "humanity's greatest challenge."

The American Institute of Architects recognizes a growing body of evidence that demonstrates current planning, design, construction, and real estate practices contribute to patterns of resource consumption that seriously jeopardize the future of the Earth's population.

We need to accept responsibility for our role in creating the built environment and, consequently, believe we must alter our profession's actions and encourage our clients and the entire design and construction industry to join with us to change the course of the planet's future.

The AIA is acting through Collaborations, Tools, Regulations, and Incentives to address these issues.

What is the AIA doing?

In December of 2005, the AIA Board of Directors took action and adopted a policy position that calls for significant reductions in non-renewable energy usage in the built environment.

In order to promote sustainable design including resource conservation, the policy reflects a desire to achieve a minimum 50 percent reduction from the current level of consumption of fossil fuels used to construct and operate new and renovated buildings by the year 2010, and promote further reductions of remaining fossil fuel consumption by 10 percent or more in each of the following five years; so that we can be carbon neutral by 2030.

We're developing tools to help us and others achieve our goal.

Others are adopting the challenge, including:

- The U.S. Conference of Mayors
- Sarasota County
- The City of Santa Fe
- The State of New Mexico
- The U.S. Green Building Council
- The American Society of Heating, Refrigerating and Air-Conditioning Engineers
- The National Association of Counties

And although we're not alone, we need many more participants in this plan if we are to meet these important targets.

How can we possibly get there? Green Design

What are some of the Benefits of Green Design?

The benefits of green design can be summarized as follows:

- The local and global environment benefits from protecting air quality, water quality, and overall biodiversity and ecosystem health.
- Economic benefits are experienced in building operations, asset value, worker productivity, and the local economy.
- Occupants benefit from health and safety features. This also relates to risk management and economics. The U.S. EPA found that average Americans spend more than 90% of their time indoors, and indoor air quality can be two to five times worse than outdoor air quality.¹
- Community and municipal benefits include: lessened demand for large-scale infrastructure such as landfills, water supply, stormwater sewers, and their related development and operational costs; and decreased transportation development and maintenance burden (roads) and increased economic performance of mass transit systems.

1. U.S. EPA Office of Air and Radiation, 1989, *Report to Congress on Indoor Air Quality, Volume II: Assessment and Control of Indoor Air Pollution*.

There are some simple steps to Green Design:

- Design spaces to be as efficient as possible
- Use an integrated team approach
- Take regional climate conditions into consideration and design accordingly
- Use natural systems to ventilate and light buildings
- Use materials that are appropriate for a given project type
 - Select materials that improve energy efficiency
 - Use locally manufactured materials
 - Use materials that improve indoor air quality

Some recent examples of Green Design include these projects that received recognition from the AIA's Committee on the Environment:

Hawaii Gateway Energy Center:

PV's originally provided about 75 % of electricity. It is very worth noting that additional commissioning and tweaking of system has turned the building into a net energy producer

Unusual strategies: condensation from cold seawater pipes collected for flushing and irrigation. Coils in ground "sweat" onto adjacent plants.

Solar Umbrella House:

... the image on the left. The jury loved this project not only for this transformation, but for how it communicated its big idea. The photovoltaic panels on the top and side are used as an expressive and transformative part of the design. The building also performs well. These panels provide 95% (soon to be 100%, they are adding more) of the house's electricity and provide shading for indoor and outdoor spaces. The pool in the foreground is part of the house's storm water retention system. The front of the house was previously the back (it's a through lot), and the house opens up to this new garden.

Regional Animal Campus

The jury loved this unusual project – The Regional Animal Campus by Tate Snyder Kimsey.

Dog adoption park... a series of doggie bungalows with 12 kennels each.

They got 81% energy reduction, 28% of needs provided by PVs, with future wind farm planned.

They reduced cooling loads and water use: minimize maintenance and operating costs without compromising the quality of the adoption experience and the dog's comfort.

Evaporative cooling is mixed with natural ventilation: minimal heating needs in Las Vegas, of course!

SECTION: Towers increase natural ventilation supplemented by evaporative cooling.

Sidewell Friends School

Designed to demonstrate an "ethical relationship between the natural and the built environment"

South façade with horizontal shading/

East and have vertical slats at an angle calculated to balance daylight and heat gain & maximize times when building does not need to rely on systems

Beautifully done.

Solar chimneys with south-facing glass are designed for passive ventilation, operating without additional energy.

Sunlight heats air within the glass chimney tops, creating a convection current which draws cooler air into the building through north facing open windows.

Ballard Library

That roof is the main form of expression for this beautiful building. It performs well: at 75% energy improvement with an EPA Target finder score of 100. The jury believed that this small civic building will last because the community will treasure it; a great example of why design is an important element of sustainability. The big overhanging roof creates a public porch and helps shade this western exposure. Main entrance is pulled back under the porch in the center. At the right side, where the glass wall is closer to the street... PV panels create a sundial as the sun moves across the windows, which you can see ...

How can the State of Iowa support Green Design?

- Support the 2030 resolution: Adopt legislation to reduce carbon emissions of all renovations and newly constructed buildings by 60% by the year 2010 and become carbon neutral by 2030.
- Require state-funded building projects to meet green building standards.
- Provide tax incentives for the development and distribution of solar and other alternative energy sources.
- Mandate net billing by utility companies to encourage consumers to contribute to the grid.
- Offer tax incentives for owners who install renewable energy systems in their buildings.
- Support interest-free financing for the purchase of energy-efficient systems by offering state income tax credit on loans.
- Sponsor grants, incentives, and other programs for the promotion of high performance school design and construction.
- Pass smart-growth legislation to encourage mixed- use, transit-oriented, and environmentally friendly development.
- Curb sprawl and direct growth to areas of the state with existing infrastructure and adequate planning.
- Support the revitalization of existing neighborhoods.

Climate Change Is Real.

We need to change what, where, and how we build!

It is an Ethical Responsibility,

And A Huge Opportunity,

We canNOT continue with Business As Usual.

Thank you.

Additional Information

The built environment that we create over the next three decades has the potential to change our lives, and the life of our planet. What's the world's single biggest source of emissions and energy consumption? Buildings. 76% of all power plant generated electricity is used just to operate buildings. The U.S. is projected to need 1,300 to 1,900 new power plants over the next 20 years (about one power plant per week). Most of this new energy will be needed to operate buildings.

Architects know that buildings can be designed to operate with less than half the energy of today's average U.S. building at little or no additional construction cost. By the year 2035, three quarters of the built environment in the U.S. will be either new or renovated. Designing smartly, in ways that are more environmentally, economically and socially sustainable, will lead to considerably less energy consumption and carbon emissions. It will also lead to the creation of more livable and likeable communities.

What are the characteristics of sustainable buildings and communities? How sustainable and livable are Iowa's communities? How can Iowa community leaders and architects work together to make Iowa's communities more livable, and more economically, environmentally and socially sustainable?

WHAT IS SUSTAINABILITY?

Sustainability is most often defined as per the United Nation's World Commission on Environment and Development's Brundtland Report, (1987), as:

"Meets the needs of the present without compromising the ability of future generations to meet their own needs."

WHAT IS SUSTAINABLE DESIGN?

Sustainable (green) design creates communities and buildings that advance enduring public and environmental well-being. Sustainable design envisions enduring environmental, economic and socio-cultural prosperity.

WHY DESIGN SUSTAINABLY?

Energy issues have been everywhere in the news lately, and concerns about rising gasoline costs and utility rates are two of the most pressing issues for Americans. Policymakers, the media, and the public seem to be focused on revamping our automobiles as the key to solving our energy and climate change problems, but real reductions in energy usage and greenhouse gas emissions requires looking beyond cars, trucks, and SUVs.

The built environment has a profound impact on our natural environment, economy, health and productivity. Buildings are the largest source of both energy consumption and greenhouse gas emissions in America as well as around the world.

According to the National Institute of Building Sciences' Whole Building Design Guide, buildings account for as much as:

- 48% of all greenhouse emissions
- 68% of electricity consumption
- 35% of carbon dioxide emissions
- 49% of sulfur dioxide
- 25% of nitrogen dioxide found in the air

Currently, the vast majority of the energy used is produced from nonrenewable, fossil-fuel resources, and the amount of energy used to erect and operate buildings has been increasing dramatically.

WHAT ARE SOME OF THE ELEMENTS OF GREEN BUILDINGS?

In general, many things go into the design of a green building. Below is a sampling of green building practices, and some of the elements that should be considered in each category:

Siting

- Start by selecting a site that is well suited to taking advantage of mass transit and/or transportation alternatives.
- Protect and retain existing landscaping and natural features. Select plants that have low water and pesticide needs, and generate minimum plant trimmings. Use compost and mulches. This saves water and time.
- Recycled-content paving materials, furnishings, and mulches help close the recycling loop.

Energy Efficiency

- Passive design strategies can dramatically affect building energy performance. These measures include building shape and orientation, passive solar design, and the use of natural lighting.
- Develop strategies to provide natural lighting. Studies have shown that it has a positive impact on productivity and well-being.
- Install high-efficiency lighting systems with advanced lighting controls. Include motion sensors tied to dimmable lighting controls. Task lighting reduces general overhead light levels.
- Use a properly sized and energy-efficient heating/cooling system in conjunction with a thermally efficient building shell. Maximize light colors for roofing and wall finish materials, install high R-value wall and ceiling insulation, and use minimal glass on east and west exposures.
- Minimize the electric loads from lighting, equipment, and appliances.
- Consider alternative energy sources, such as photovoltaics and fuel cells that are now available in new products and applications. Renewable energy sources provide a great symbol of emerging technologies for the future.
- Computer modeling is an extremely useful tool in optimizing design of electrical and mechanical systems and the building shell.

Materials Efficiency

- Select sustainable construction materials and products by evaluating several characteristics such as reused and recycled content, zero or low off-gassing of harmful air emissions, zero or low toxicity, sustainably harvested materials, high recyclability, durability, longevity, and local production. Such products promote resource conservation and efficiency. Using recycled-content products also helps develop markets for recycled materials that are being diverted from California's landfills as mandated by the Integrated Waste Management Act.
- Use dimensional planning and other material efficiency strategies. These strategies reduce the amount of building materials needed and cut construction costs. For example, design rooms on 4-foot multiples to conform to standard-sized wallboard and plywood sheets.
- Reuse and recycle construction and demolition materials. For example, using inert demolition materials as a base course for a parking lot keeps materials out of landfills and costs less.
- Require plans for managing materials through deconstruction, demolition, and construction.
- Design with adequate space to facilitate recycling collection and to incorporate a solid waste management program that prevents waste generation.

Water Efficiency

- Design for dual plumbing to use recycled water for toilet flushing or a gray water system that recovers rainwater or other nonpotable water for site irrigation.
- Minimize wastewater by using ultra low-flush toilets, low-flow shower heads, and other water-conserving fixtures.
- Use recirculating systems for centralized hot water distribution.
- Install point-of-use water heating systems for more distant locations.
- Use a water budget approach that schedules irrigation using the California Irrigation Management Information System data for landscaping.
- Meter the landscape separately from buildings. Use micro-irrigation (which excludes sprinklers and high-pressure sprayers) to supply water in non-turf areas.
- Use state-of-the-art irrigation controllers and self-closing nozzles on hoses.

What surprises many people is that good green buildings often cost little or no more to build than conventional designs. It's easy being green.

LESS = MORE

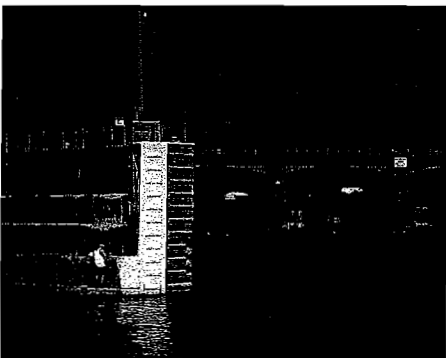
Breakthroughs in building science, technology and operations are available to designers, builders and owners who want to build green and maximize both economic and environmental performance. Commitment to better performance, close teamwork throughout the design process, openness to new approaches and information are more important than a large construction budgets. Designing smartly, in ways that are more environmentally, economically and socially sustainable, will lead to considerably less energy consumption and carbon emissions. It will also lead to the creation of more livable and likeable communities.

Sustainable buildings use LESS energy,
but often provide MORE:

- Long-term economic value
- Improved indoor air quality
- Daylighting and views
- Thermal Stability
- Acoustical privacy

Sustainable communities use LESS energy,
but often provide MORE:

- Transportation options
- Mixed-use
- Housing options
- Access to outdoor recreation
- Live-work connections
- Human scale
- Neighborhood identity



WHAT ARE THE ADVANTAGES OF GOING GREEN?

To the environment:

- Enhance and protect ecosystems and biodiversity
 - Greenhouse gas reduction
- Improved air and water quality
 - Solid waste reduction
- Conserve natural resources

To the community:

- Demonstrated environmental leadership
- Improve air, thermal and acoustic environments
 - Enhance occupant comfort and health
 - Minimize strain on local infrastructure
- Contribute to overall quality of life
 - Unique marketing potential

To builders:

- Lower waste disposal cost
- Reduced use of materials
- Unique marketing potential

To owners/users:

- Lower utility bills
- Reduced maintenance costs
 - Preferential mortgages
- Lower waste disposal cost
- Reduced use of materials
- Reduced operating costs
- Enhanced price appreciation, asset value and profits
- Improve employee productivity, health and satisfaction
 - Optimize life-cycle economic performance

If current trends continue, U.S. annual energy consumption is projected to increase by 37 percent and greenhouse gas emissions by 36 percent in the next 20 years.

WHAT MAKES A BUILDING GREEN?

A green building utilizes design, construction, and maintenance practices that significantly reduce or eliminate the negative impact of the building on occupants and the environment.

Integrated strategies that solve multiple problems are commonly used. A green building places a high priority on health, environmental, and resource conservation performance over its life cycle. Green design emphasizes a number of environmental, resource, and occupant health concerns:

- Reducing human exposure to noxious materials
- Conserving non-renewable energy and scarce materials
- Minimizing life-cycle ecological impact of energy and materials used
- Using renewable energy and materials that are sustainably harvested
- Protecting and restoring local air, water, soils, flora, and fauna
- Supporting pedestrians, bicycles, mass transit, and other alternatives to fossil-fueled vehicles, (part of a green community)

Most green buildings are high-quality buildings; they last longer, cost less to operate and maintain, and provide greater occupant satisfaction than standard developments. Sophisticated buyers and lessors prefer them, and are often willing to pay a premium for their advantages.

ADDITIONAL RESOURCES

<http://www.aia.org>

<http://www.architecture2030.org>

<http://www.usgbc.org>

<http://www.energydesignresources.com/>

<http://www.energystar.gov/>

<http://www.greenbuilder.com/sourcebook/>

<http://www.wbdg.org/>

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Issue Brief

The American Institute of Architects • Government Advocacy • Current Issue Position and Analysis

Green Building Provisions

Key Points:

- *The financial benefits of building green include:*
 - Lower energy, waste and water bills
 - Less waste
 - Lower operational and maintenance costs
 - Increased worker productivity
 - Increased health
- *Green buildings, on average, use 30% less energy than conventional buildings.*
- *Spending \$100,000 in a \$5 million project to incorporate green design would save \$1 million throughout the life of the building.*
- *The additional costs of building green in Seattle has dropped from 3-4% several years ago to 1-2% today.*
- *By using green technology to control indoor air temperatures and increase exposure to day light, productivity gains for U.S. office workers could reach \$20 billion to \$200 billion.*

The Economics of Green

AIA Position

The American Institute of Architects seeks to dramatically increase the number of high-performance, energy-efficient "green" buildings constructed in both the private and public sectors. Green buildings use resources, such as energy and water more efficiently and have systems in place to take advantage of existing natural resources. To facilitate these goals, below are some resources to help understand the importance of policies promoting energy efficiency and green buildings.

Action Sought

The AIA urges the support of measures encouraging the construction of high-performance buildings in all sectors.

Explanation and Justification

A common misconception is that green buildings are too expensive – for both the public and private sectors. However, a preponderance of evidence demonstrates that this is an incorrect assumption. Many architects have already incorporated energy efficient design principles into their work, and these efforts continue to expand within the profession. Public and private sector clients are starting to realize that there are many benefits associated with green buildings. Financially, green buildings include lower energy, waste, and water costs, lower operations and maintenance costs, and savings from increased productivity and health gains related to indoor environmental quality.

For instance, according to a study conducted by Gregory H. Kats, a principal at the strategic consulting firm Capital E, which compared the costs of 33 green buildings from across the United States to the conventional design costs for those same buildings, the average increase for building green is less than 2%, or \$3-5/ft². Most of this cost is associated with integrating green technologies or methods. This cost goes down the earlier green building features are introduced into the design. Kats also found that financial benefits associated with energy, emissions, water, operations and health savings over a 20-year time period, totaled \$50-\$65 per square foot, or 20% in savings.

A second study released by international cost consulting company Davis Langdon, "Costing Green: A Comprehensive Cost Database and Budgeting Methodology," compared the construction costs of 45 building projects seeking certification by the U.S. Green Building Council's LEED™ green ratings system to the costs of 93 projects that did not consider LEED™. The buildings consisted of libraries, laboratories and academic classroom buildings. The study found that the costs of the buildings seeking LEED™ were no different in range than those not seeking LEED™.

Both studies show that building green is no longer the expense it used to be. More importantly, it actually saves money in the long term. Building green is no longer only for environmentalists – it makes for smart business. As more communities turn to green design, costs will drop even further, until green design becomes the standard.

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Green Building Provisions

Key Points:

- ➔ *The U.S. Conference of Mayors unanimously approved a resolution to reduce carbon emissions of all renovations and newly constructed buildings by 60% by the year 2010 and become carbon neutral by 2030.*
- ➔ *Green buildings can save governments and taxpayers money by reducing annual energy expenses by 20% - 50%.*
- ➔ *In attempts to make Chicago the greenest city in America, the government chooses one industry each year to help become more energy efficient. They aim to save 10%-25% of energy per company.*
- ➔ *Washington, Maryland, Arkansas and Nevada each passed bills during the 2005 state legislative sessions requiring that state-funded building projects and substantial renovations meet green building standards.*
- ➔ *Studies show that without tax incentives solar technology will take an extra 15 years to diffuse into the marketplace.*

Green Building Measures

AIA Position

The American Institute of Architects seeks to dramatically increase the number of high-performance, energy-efficient "green" buildings constructed in both the private and public sectors. Green buildings use resources, such as energy and water more efficiently and have systems in place to take advantage of existing natural resources. To facilitate these goals, below are some resources to help understand the importance of policies promoting energy efficiency and green buildings.

Action Sought

The AIA urges the support of measures that would require all public buildings to meet a standard of energy efficiency and that would create tax incentives to encourage green building in the private sector.

Explanation and Justification

Buildings consume between one third and one half of the energy expended in the United States. Furthermore, buildings use two-thirds of all electricity and produce approximately 43% of carbon dioxide emissions. By increasing energy efficiency we will not only reduce our dependence on foreign oil, but will significantly decrease green house gas emissions and help to curtail the worldwide effects of global warming. The only way to significantly reduce total energy consumption is to address energy efficiency in buildings. Lowering energy consumption, minimizing waste and conserving water, can also lessen the costs associated with building maintenance and improve indoor air quality which can increase health and productivity.

Public Buildings

Cities must lead the way in green design. By requiring the use of high-performance buildings, cities can remain on the forefront of technology and can save money. According to the Federal Energy Management Program, higher energy efficiency standards for federal agencies dropped total energy consumption by 23% from 1985 to 2001, saving taxpayers approximately \$1.4 billion per year.

Commercial Buildings

Commercial buildings are responsible for almost half of the total U.S. energy consumption and half of the electricity consumption. Every year, nearly 170,000 new commercial buildings are constructed and 44,000 are demolished. The private sector cannot be ignored if true energy-efficiency is to be sought. Green building tax credits encourage developers to invest in green buildings by offsetting some of the initial cost and help foster economic growth.

What America Thinks: A recent nationwide poll of voters (1,000 sample, margin of error +/- 3.1%) conducted January 3-5, 2006, by two respected national pollsters — The Tarrance Group, a Republican firm, and Lake Research Partners, a Democratic firm — indicated that 84 percent of voters agreed that "new tax breaks should be given to encourage the design and construction of buildings that significantly reduce pollution and energy consumption."



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Green Schools Key Points:

- *California's CHPS program has successfully encouraged green schools in the state. It provides a clearinghouse of information, services, and incentives.*
<http://www.chps.net/>
- *The Illinois Environmental Protection Agency sponsors grants for green schools and provides a number of resources for school districts.*
<http://www.greeningschools.org>
- *Pennsylvania offers grants, incentives, and other programs for the promotion of high performance school design and construction/renovation.*
<http://www.gggc.state.pa.us/gggc/cwp/view.asp?a=3&q=152001&gggcNav=6833>
- *Massachusetts is currently instituting a pilot program based on the CHPS program. The goal of the initiative is to provide materials and information to school districts so they will design/build healthy, energy efficient green schools.*
http://www.mtpc.org/RenewableEnergy/green_schools.htm

Green Schools

AIA Position

The American Institute of Architects supports green schools. The AIA believes that green schools promote energy savings, effect positive environmental change, improve health and educational achievement, and provide hands-on learning experiences to students and faculty.

Action Sought

The AIA urges state legislators and local government/school officials to support programs and legislation which promotes the design and construction of green schools. Well designed green buildings have the potential to curb America's rampant energy use and encourage healthy living.

Explanation and Justification

State and local officials across the country are beginning to better understand the reasons for building green. Green buildings help diminish the nation's excessive thirst for fossil fuels, protect the environment, provide natural light to occupants, improve indoor air quality, and create a superior work/learning environment.

Buildings are currently the largest source of emissions and energy consumption in the US, accounting for nearly half of all greenhouse gas emissions. Green schools present a direct benefit to students and faculty, while also providing an important benefit to society at large. They promote healthy, high achieving students who will become future advocates for green living, as this generation learns the importance of building for a sustainable future.

California's Collaborative for High Performance Schools (CHPS) program has been particularly successful. This program encourages the design, construction, and rehabilitation of schools according to green building principles. Officials in the state realize that within the next 10 to 15 years local communities will construct or renovate tens of billions of dollars of K-12 educational facilities. In order to help preserve the future the CHPS program markets information, services, and incentive programs directly to school districts and architects.

Legislative initiatives that advocate for statewide green schools programs should be encouraged. Direct subsidies, grant programs, and other similar, positive ideas promote green schools, because they offset the initial cost premium associated with green design and construction. Currently the green schools cost premium is between 1.5 – 2.5% of the total cost of the project. Studies undertaken to demonstrate the efficacy of green schools peg the benefits to states at anywhere from 10x to 20x the initial cost. School districts see direct benefits accrue at a level of around 4x the cost due to energy savings and other cost control mechanisms implemented.

The design and construction of green schools in every state across the country is a laudable goal, which will help diminish the amount of fossil fuels consumed by school buildings, positively affect the environment, provide a hands-on learning experience, and improve student health and education.

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Smart Growth Examples:

- *Nevada passed legislation in 2005 that encourages mixed-use, transit-oriented, and environmentally friendly development.*
- *Delaware's program, Livable Delaware, set a strategy to curb sprawl and direct growth to areas of the state with existing infrastructure and adequate planning.*
- *Arlington, Va., received the EPA's first national smart-growth award in 2002 for its development of the Rosslyn-Ballston corridor. This corridor includes mixed-use residential, retail, and recreational development around five Metro transit stations.*
- *Louisiana established the Neighborhood Enhancement Program in 2004. It focuses on revitalization strategies for distressed, central downtown districts.*
- *Davidson, N.C., won the EPA's smart-growth award in 2004. This community adopted a planning ordinance in 2001 and requires intensive, collaborative design sessions for every new development project.*

Smart-Growth: Building Livable Communities

AIA Position

The AIA supports smart growth. The AIA believes that smart, mixed-use development, including residential, commercial, retail, and municipal buildings within close proximity of one another, cuts down on automobile use, saves energy and promotes walkable, healthy, well-designed neighborhoods.

Action Sought

The AIA urges state legislators and local government officials to support legislation that promotes smart-growth development. Successful state and local programs exist across the country. These programs preserve urban centers, promote managed growth, decrease congestion and sprawl, enhance neighborhood identity, and support outstanding architecture.

Explanation and Justification

State and local officials across the country are responding to citizen requests for smarter growth. They're passing pushing initiatives that create environmentally sensitive, pedestrian friendly, livable communities.

On the local level, incentive zoning programs have worked particularly well. These plans can include initiatives such as bonus density programs, form based codes, and tax credits in return for focused development within cities and towns. By focusing development in areas with pre-existing infrastructure it also saves local governments money and protects the environment. Arlington, Va., successfully used incentive zoning to focus development in its Rosslyn-Ballston transportation corridor, resulting in over 21 million square feet of retail, office, and commercial space, more than 3,000 hotel rooms, and over 22,000 residential units. These "urban villages" encourage people to live, shop, play, and work in their immediate community and to travel using multiple modes of transportation.

Mixed-use, smart-growth development protects open space and the environment by reducing sprawl and environmental problems, including surface water run-off and carbon dioxide emissions. Smart-growth development supports vital public transportation systems and affordable housing, through the promotion of mixed income neighborhoods. The creation of diverse, attractive, walkable neighborhoods furthers the AIA's goals of livable communities. The AIA's 10 principles for livable communities provide the foundation to create economically viable, healthy, sustainable communities:

1. Design on a Human Scale
2. Provide Choices
3. Encourage Mixed-Use Development
4. Preserve Urban Centers
5. Vary Transportation Options
6. Build Vibrant Public Spaces
7. Create a Neighborhood Identity
8. Protect Environmental Resources
9. Conserve Landscapes
10. Design Matters

For more information on the AIA's Center for Communities by Design and the 10 of Livable Communities, go to the Web at: www.aia.org/liv_principles.

For more information contact the State and Local Affairs team at 202-626-7507 or govaffs@aia.org.